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CACTUS AND SUCCULENT JOURNAL

Of the Cactus And Succulent Society Of America

XIX AUGUST, 1947 No. 8

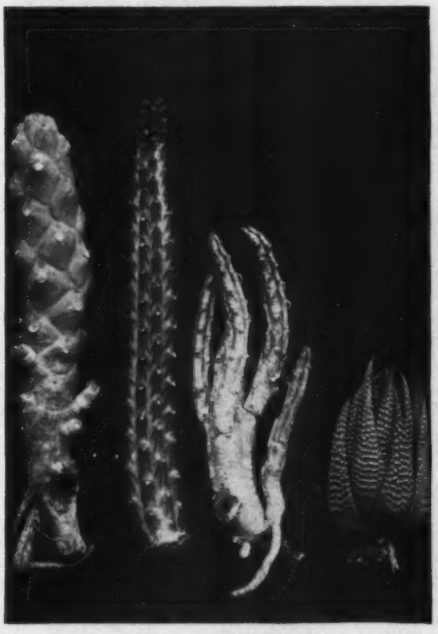

FIG. 78. Group of South African succulents as imported from Melsetter Nurseries. Importing these plants is a valuable service to collectors (see next page). Haselton photo half size.

CACTUS AND SUCCULENT JOURNAL

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IMPORTING PLANTS

By J. W. DODSON

Importing plants is a very difficult and un-remunerative undertaking and I can now see why none of our commercial dealers have gone into it. On several shipments that came in during the winter over 70% of the plants were lost, either through freezing en-route or too cold and damp conditions here. However, experience taught us not to ship any plants from South Africa during the months of Nov., Dec., Jan. and Feb. Of a shipment received about two weeks ago, out of 400 plants, 90 were lost in-transit, which is still quite considerable. We are experimenting with different methods of packing, and preparing for shipment and hope future shipments can be held to a minimum of losses.

So many of the plants in this country are of hybrid origin that to receive true species, even though not particularly new or rare ones, should create more interest and after all anything that stimulates interest in these plants is what both you and I want. I have letters from various correspondents in South Africa, in answer to some of mine, in which I had mentioned the fact that before the war many plants and quite a lot of seed had been sent to this country by commercial dealers, such as Triebner, etc. These correspondents remarked upon the fact that Triebner and others had sent seeds and even plants collected, not from type location, but from their own gardens, many of the plants and most of the seed being un-natural hybrids. In fact knowingly or unknowingly it would seem that many plants were sent to Dr. Von Poellnitz to describe, that were not collected from type localities, as my correspondents write that they cannot locate these plants now at the localities designated.

Names of succulents shown on front cover in order shown.

1. *Monadenium Lugardae*—An interesting succulent that ships well. Have had no losses with this species. One that I received in September last year now has three stems, and true leaves from the top.
2. *Senecio stapeliaeformis*—Needs no introduction, although the imported specimen seems more robust and has more angles to the stem than do most of those here in collections.
3. *Stapelia virescens*—One of the best of the Stapelia group, also ships quite well, and regardless of flowers, presents an interesting appearance.
4. *Haworthia Poellnitziana*—This is one that I am advised is the nearest thing to the one described by Uitewaal. None can now be found at the exact location given by him, but this *Haworthia* grows some distance away although in the general locality.

ARIZONA HIGHWAYS MAGAZINE

Phoenix, Arizona

If you want to secure the valuable December, 1947, issue of this excellent magazine with the unequaled color plates you should mail your $3 (foreign $3.50) to them immediately because it takes 60 to 90 days to get on the mailing list. The December, 1947, issue will contain fourteen close-ups of cactus flowers in full color by R. C. and Claire Proctor. These eight full pages will be worth more than the entire year's subscription price.

Front cover: *Echinocereus Engelmannii.* Five flower cluster. Back cover: *Echinomastus Johnstonii Arizonicus.* Plant and four green flower cluster. A new discovery and described by W. Taylor Marshall. Full page: *Nopalxochia phyllanthoides.* The famous Empress Orchid Cactus. Large cluster of flowers. Full page: *Echinocereus coccineus.* Crimson Hedgehog. Four flower cluster. Full page: *Opuntia Engelmannii.* Common prickly-pear. Four flower cluster. Full page: *Opuntia Bigelovii.* Teddybear or Silver cholla. Flowers and joint cluster. Greenish white flowers. Jumping cactus. Full page: *Ferocactus Wislizennii.* Orange yellow flower cluster. Barrel. Full page: *Opuntia erinacea.* Porcupine cactus. Joints and flower study. Half page: *Echinocereus Engelmannii.* Long spine study and flower. Half page: *Opuntia versicolor.* Peach Cholla, an allusion to the peach colors of the flower cluster. Quarter pages: *Echinocerus Boyce-Thompsonni.* Purple hedgehog, two flower study. *Echinocereus Fendleri.* Strawberry hedgehog. Single flower study. *Opuntia aciculata.* Bristly-pear. Two flower study. *Mammillaria magnimamma.* Plant and flower study. Pincushion. Green. The last cactus issue of January was not nearly enough to go around so in view of the popularity of the cactus flower pictures in color it is suggested that subscriptions be ordered now. Newsstands may be limited.

L. T. Peters, 5 marlborough Rd., Ashford, Middx, England, writes that he cannot obtain a permit to import seeds. He wants to know if some member will send him a few cactus seeds until restrictions are lifted.

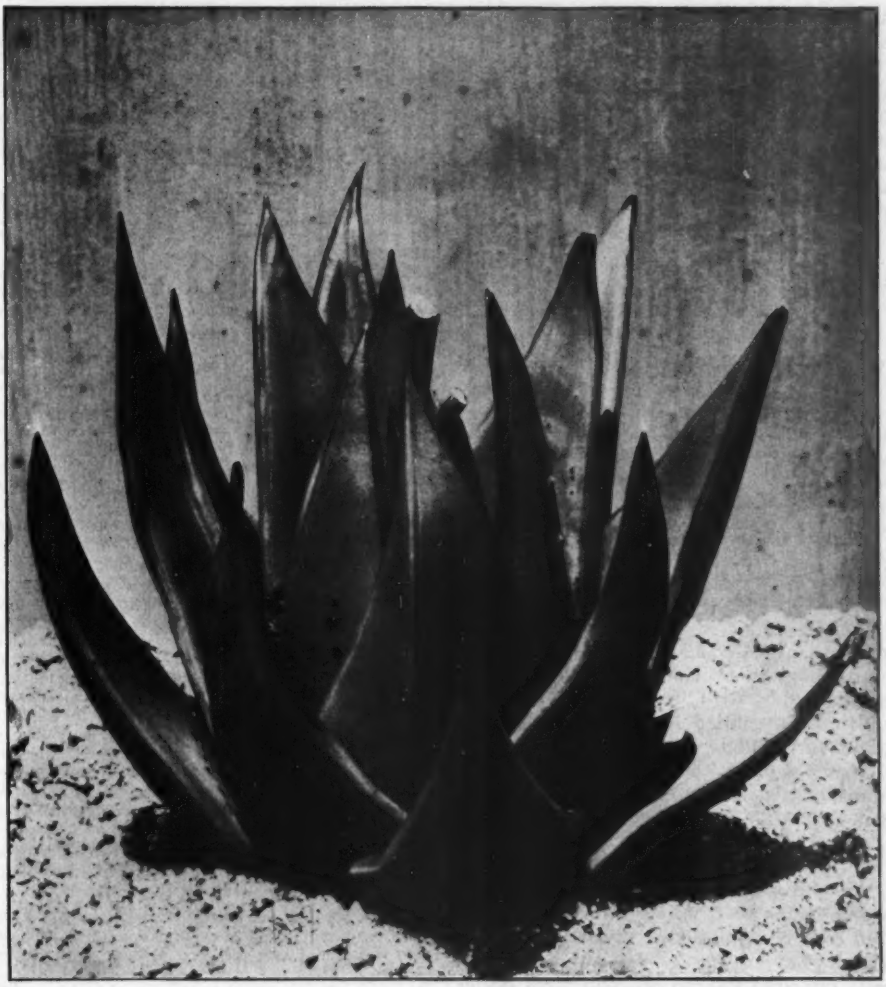

Fig. 79. *Haworthia marginata* (Lam.) Stearn, nat. size

NOTES ON HAWORTHIAS

By J. R. BROWN

Haworthia marginata (Lam.) Stearn in Cact. Journ. VII (1938) 39. *Aloe marginata* Lam. Encycl. I (1783) 89. *Aloe albicans* Haw. in Trans. Linn. Soc. VII (1804) 8; Salm-Dyck Monogr. (1854) sect. 5, fig. 1. *Haworthia albicans* (Haw.) Haw. Syn. (1812) 91; Bak. in Journ. Linn. Soc. XVIII (1880) 207; Berger in Pflanzenr. IV 38 (1908) 94; Uitew. in Succulenta XX (1938) 140.

Plant stemless or with a very short stem, simple, to 18 cm. diameter.

Leaves erect-spreading, ovate-lanceolate, acute, 7-10 cm. long, 4-4.5 cm. broad, thick, rigid, face lightly concave, rounded on the back and obliquely keeled in the upper part, and terminating in a short, pungent point, the entire leaf surface very smooth and somewhat shining and of a pale whitish-green color, the upper margins

and the keel with a conspicuous, lightly raised, horny band.

Peduncle very stout and branching, the racemes many flowered; sterile bracts lanceolate acute; pedicels 3-4 mm. long, bracts about the same in length; perianth about 14mm. long, the obclavate tube greenish-white with green lines; segments white with green keels, the 3 upper segments scarcely recurved.

South Africa; type locality unknown.

This Haworthia has been recorded from the vicinity of Riversdale in recent times.

Introduced to Holland about the year 1700.

The photograph, used to illustrate this Haworthia, is of a plant from South Africa without any change in its appearance due to cultivation. After several years in cultivation the appearance of the plant changes somewhat. Due to the more favorable conditions in cultivation, many more leaves are borne by the plant, (this is commonly the case with many Haworthias), the leaves become more spreading, the oldest becoming recurved, the horny band on the margins and keel becomes very white, and the plant attains a large size.

This Haworthia is, of course, better known under the name, *Haworthia albicans,* however, the name given by Lamarck has priority and was changed by W. T. Stearn in that admirable work of his, entitled *An annotated Index to Salm-Dyck's "Monographia Generum Aloes et Mesembryanthemi"* published in the Cactus Journal of Gt. Britain, vol. 7, Nos. 2 and 3, 1938-39.

SUCCULENT PLANTS—Jacobsen

We have been appointed exclusive agents in the U. S. A. for this new edition. You can recognize the revised and corrected 1947 edition by the Abbey Garden Press imprint. Printed on high gloss paper and bound in cloth $6.50, postage 15c, foreign 50c. California buyers, please add sales tax 16c. There are 295 pages with 300 illustrations of succulents. Genera and species are arranged in alphabetical order for convenience. Order this most complete succulent book now while available and before price advances.

NEW AND RARE SUCCULENTS — H. Krainz, president of the Swiss Cactus Society. Written in the German language, this booklet describes 9 new species or varieties of cacti, besides remarks and descriptions of many already published. 37 excellent photographs are reproduced. Printed on fine quality paper. $1.00 postpaid in U. S., foreign please add 10c.

Abbey Garden Press.

CARE OF IMPORTED SUCCULENTS

The following brief pointers on successful growing succulent plants recently imported from South Africa, have been gathered from actual experience in handling many such plants. These notes are an aid only until the plants have become established. After becoming well established, any culture that you have successfully used in the past for other succulents will be quite satisfactory.

The question of soil composition, fertilizer, watering, etc., is fully explained in many publications, much better and at greater length than we could hope to do herein.

1—Resistance to bacterial and fungus diseases has been naturally lowered. It is therefore best to sterilize both the container and the soil. The best and simplest method for sterilizing, is as follows: Fill the pot or container with whatever soil is to be used for planting. However, it is well to place about 1 inch of coarse sand on the top. Thoroughly wet the soil. Bake the soil and container in a hot oven, 450 degrees, for about one hour. The moisture, creating steam, helps in sterilizing. If it is necessary to remove some soil to properly plant the succulent, remove the soil to a clean paper, using a spoon or other instrument that has been thoroughly washed in soapy water.

2—Remember these plants are quite dry and dormant. They have been many weeks without moisture and in a dark packing box. They cannot absorb moisture until they have first developed a root system. Never water from the top, until the plant is thoroughly established. After planting in the sterilized soil, set the pot in a shallow dish or pan. Suitable glass berry dishes may be purchased at Woolworth's very reasonably for this purpose. Place about 1 inch of water in this lower recepticle, so that moisture is absorbed from the bottom. Set the pot in a shaded place for several days. Gradually give more and more light. When plant greens up and shows signs of growth, it may be placed alongside your other plants. It is best to give water by filling the saucer every three or four days until growing well, when water may be given as desired.

Plants that show signs of growth, or that have an established root system when received, may be watered more heavily and oftener from the start.

Plants are collected from their native habitat where they may sustain damage from many causes. They are also transported over the great distance between here and South Africa and may receive further blemishes in shipment. They will, however, in time, grow into good specimens as new growth will take the place of the damaged portions.

It is difficult to secure large specimens or specimens of any certain size. Some are small, others larger. As a rule we find that small young plants will root and grow faster than will old, large plants. You will, in any event be surprised at the rapid growth these plants will make, as it seems that imported plants have more vitality and possibly contain more root hormone than do domestic grown plants.

NOTE: The genus *Trichocaulon* must always be watered sparingly. They should always be watered from the bottom. In our opinion, the stemless Mesembrianthemums, such as Lithops, Conophytums, etc., should always be watered from the bottom, although in their growing season they can stand such watering frequently.

J. W. DODSON.

Fig. 80. *Peruvocereus rubrospinus* sp. nov.

NEW SPECIES FROM PERU

By JOHN AKERS

Peruvocereus rubrospinus sp. nov.

Plantae columares usque ad 1.5 m. altae ex basi ramosae ramis 10-15 circa 6 cm. diametro; costae 21-22 depressae; areolae 5 mm. longae 4 mm. latae 2 mm. altae tomentosae ad usque 8 mm. separatae pilos cincinatos brevos albos et spinas circa 25 gerentes; spinae radiales aciculares obtusae 7 mm. longae flavae rubro-maculatae; spinae centrales 1-2 deflexae aciculares vel setiformes flexibiles ad usque 4 cm. longae; setae 55-60 flexibiles sed fragiles albae vel per occasionem rubescentes 1 cm. longae divaricatae; cortex viridis spinis setisque obscurus; flores solitarii diurnales anguste infundibuliformes, tubo angusto ad usque 7 cm. longo brunneo-rubro squamato, limbo rotato circa 5 cm. lato, segmentibus exterioribus spathulatis apiculatis coccineis, segmentibus exterioribus linearibus apiculatis strorubris reflexis, squamis tubi apiculatis pilos albos 7.5 mm. longos axillis gerentibus; gemmae atrorubrae parce pilosae; ovarium viride squamatum pubescens; stamina numerosa inclusa filamentibus ad apicem roseis ad basem versus albis; stylus breviter exsertus ad apicem roseus ad basem versus albus; stylus breviter exsertus ad apicem roseus ad basem versus albus, lobis stigmatis circa 13 virido-flavis 4 mm. longis plumosis; fructus parvus; semina parva lucido-nigra punctata; radices lignei cortici squamato.

Plants columnar, to 1½ meters tall and branching from the base to form groups of 10 to 15 stems about 6 cm. in diameter; ribs 21 to 22, low; areoles felted, 5 mm. long, 4 mm. broad, 2 mm. high, approximately 8 mm. apart, filled with short, white, kinky hairs, and about 25 spines; radial spines acicular, non-pungent, 7 mm. long, yellow mottled with red; 1 or possibly 2 central spines, deflexed, acicular to bristle-like, flexible and to 4 cm. long; about 55-60 flexible but brittle white or occasionally reddish bristles averaging 1 cm. in length emanating in all directions; epidermis dull green but nearly hidden by the heavy growth of spines and bristles; flowers solitary, appearing anywhere up and down the stems, diurnal opening by 2 p.m. one day and closing by 10 a.m. the next; buds dark garnet-red, slightly hairy; flowers narrowly funnelform; tube slender, to 7 cm. long; limb expanded, rotate, about 5 cm. across; inner perianth segments spatulate, apiculate, rich rose-crimson; outer segments nearly linear, apiculate, deep red, much reflexed; tube dark red-brown with long, narrow, prominent scales; scales apiculate, with about 40 white-cottony hairs 7.5 mm. long in their axils; ovary green, scaly, hairy (hairs about 5 mm. long); stamens many, included; filaments filiform, rose above, white below; anthers

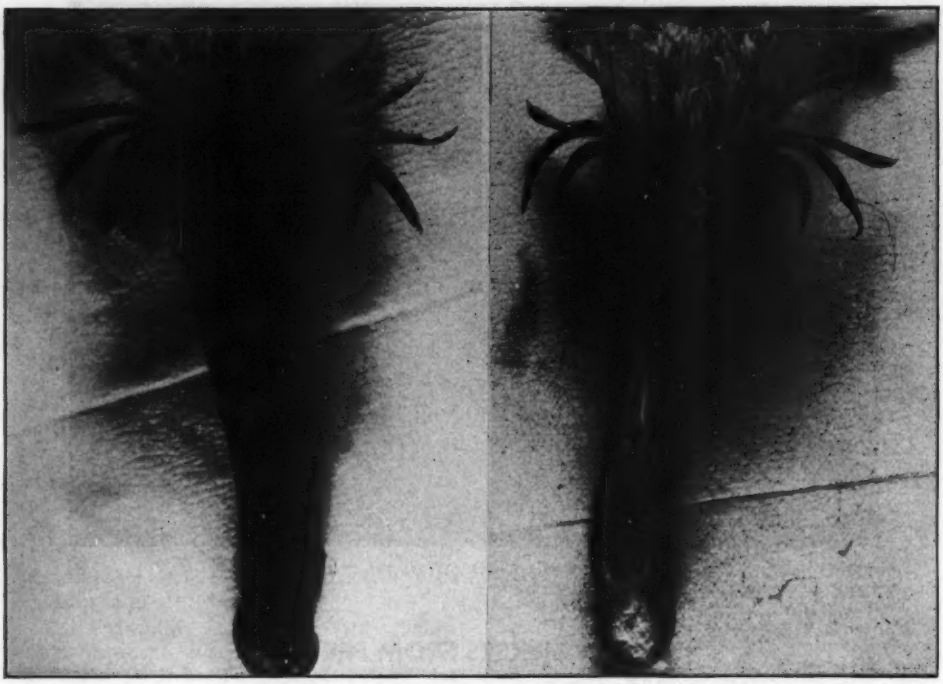

Fig. 81 *Peruvocereus rubrospinus* sp. nov.

Fig. 82 *Peruvocereus rubrospinus* sp. nov.

small (1 x 1.5 mm.), oblong, ivory colored; style slightly exserted, weak, flattened, rose above, white below; stigma-lobes 13, 4 mm. long, greenish-yellow, plumose; fruit small, reddish with persistent floral remains, (only 1 in perfect fruit seen); seeds small, black, shiny, punctate; roots coarse, woody, with scaly bark.

Type locality: A western ridge about 1,000 feet above the Santa Eulalia River.

This remarkably free-flowering *Peruvocereus* is very attractive although quite rare. The combination of reddish spines and white bristles produces a nearly pure, light red color in the new growth that is exceptionally attractive. The flowers are probably as colorful as any in the genus and add much to the plants. Although it flowers nearly continuously throughout the summer, I have seen only one, poorly developed fruit and believe this plant to be self sterile. However, one other species of *Peruvocereus* bloomed continuously for two years without setting fruit, but now does set fruit quite readily. This species is quite distinct from the other species of the genus, only one of which produces red flowers.

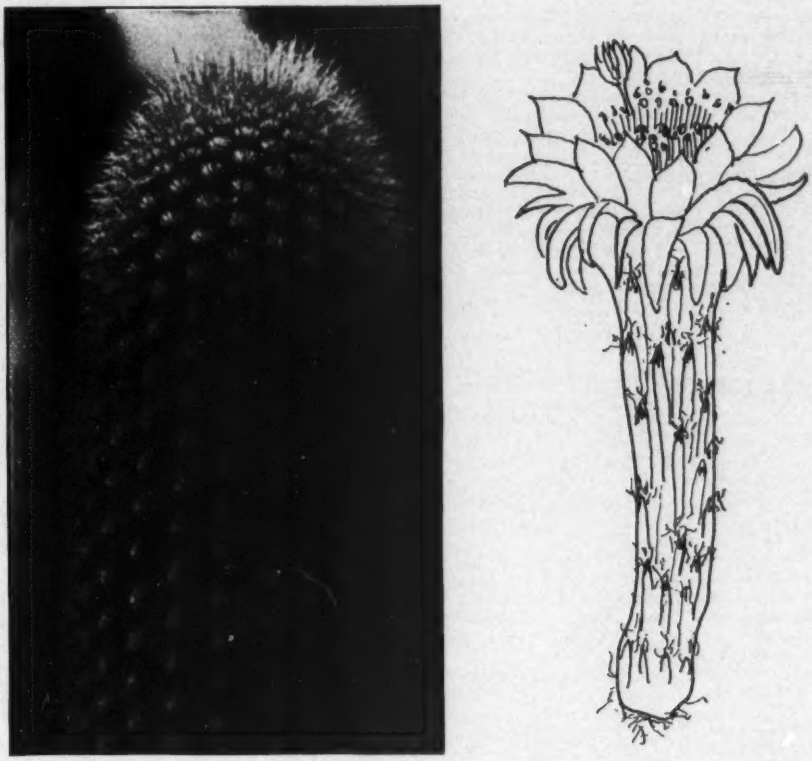

Fig. 83 *Peruvocereus rubrospinus* sp. nov.

LETTER TO GUY QUINN

"One of the plants that you sent me in the collection of flowering size native Texas cacti was a *Homalocephala texensis* which has caused much excitement here in New Jersey. One morning I discovered a newly shed snake skin around the base of the plant. Of course we have been looking for the snake ever since and today I found it on the floor. It was about a foot long and a dirty yellow. Can you tell me what kind of a snake it is and whether it is poisonous. In looking around this particular cactus today I discovered a hole in the base of the plant about three inches deep; I presume that is where the snake has been for at least these two months. Any information you can give me will be appreciated."

HUBERT M. SCHOTT.

GUY QUINN'S REPLY

"Answering your letter relative to the extra value you received in the cactus plants, at first thought I had in mind sending you a bill for $5.00 which is the regular price for some varieties of snakes. However, on second thought, from your description this must be a 'coach whip snake' and is harmless and of no value, so you may keep him. If it had been a good native Texas rattler, you would have known what he was at the beginning. There are only two poisonous snakes in the South-west, the other being the 'copperhead.' You are at liberty to handle the snake all you wish but if it were mine I would just turn it loose—I never kill a snake, even a rattler, as they have some purpose or they would not be here. I am glad that your plants are satisfactory and you might point out to your friends that they can get a nice cactus garden free with every subscription to the Cactus and Succulent Journal, but I won't guarantee a snake with every lot."

GUY QUINN.

THE WORLD OF PLANT LIFE—Hylander, 1945. The five reprintings of this book attests to the importnace which it extols. It is probably the most comprehensive book on plants that has yet been written for the general reader. Mr. Hylander classifies and discusses virtually every common type of plant now extant in this country—native and naturalized; he tells of their distribution, their habits, their uses, and the various unique and specialized structures which enable them to exist in specific environments. Contains over 400 photographs and line drawings. The book is as fascinating as the world of plants which it describes. Price $4.10 postpaid. Foreign $4.75.

ABBEY GARDEN PRESS
Box 101 — Pasadena 16 — California

A LETTER FROM ENGLAND

When I arrived home from the army, I found everything in perfect order. My collection of cacti and succulents looked grand, and I had about three year's copies of the JOURNAL to catch up on!

It's encouraging to learn that the English Society is starting up once again. It makes you realize that the wheels are starting to turn once again—though they may turn only slowly to begin with. Let us hope that the next thing to happen will be the lifting of the ban on importing seeds and plants. Have you heard anything about the state of the cactus trade in Europe? I've often wondered what happened to Haage, Wenzel and the many others whose names were so familiar in the prewar days? Surely at least one member of the Society is over there, and could give a report. It would make very interesting reading.

As far as I was concerned, I found myself out in the far East—and I saw many more orchids than cacti. I did notice though that in India, several succulents are used for hedging. *Agave americana* seems to be used extensively, and in the central provinces, it forms a familiar part of the landscape. A species of *Euphorbia* is also very generally used. I didn't succeed in identifying it, but it seemed to be very near *Euphorbia resinifera.*

Opuntias were pretty common, though I only saw one *O. ficus-indica!* But then what's in a name? An Indian doctor in the same unit as myself tells me that an Indian poet once compared a Princess' lips to the scarlet of an *Opuntia* flower, in one of his poems. I'm not so much concerned with the simile, as the fact that the poem was written over a 1,000 years ago! If my history is correct, America didn't come on to the map until about 1492. If cacti are *all* indigenous to America *only,* then there must have been contact long before then from the Far East. I won't enlarge, but it raises an interesting train of thought—I must confess that I've spent some considerable time thinking it over.

The Botanical Garden in Singapore interested me very much. Just a word about the climate there. It varies between 85°-90° F. all the year round. There's no recognized hot or cold season (no resting period!). It rains a consistent 10 inches per month each of the twelve months, and the relative humidity very rarely falls below 99%! And yet cacti and succulents are flourishing there. I must admit that the selection is very limited, but I personally saw the following species in full bloom: *Cereus* (*peruvianus* type), *Echinopsis, Echinocereus, Opuntia* (Platyopuntia and Cylindorpuntia), *Euphorbia* (about 10 different species), *Bryophyllum, Echeveria, Cotyledon, Jatropha* and a few others which I can't recall at the moment. Under such climatic conditions I was surprised to see them growing so well. It shows that at least a few types of succulent plants can adapt themselves to a climate which must be the absolute antithesis of that which makes succulence a necessity—and in addition they were covered with blooms despite the absence of a resting period! Just another point for anyone to start an argument over. I noticed that about 30% of the plants had signs of fasciation somewhere on the plant, most particularly the Euphorbias. One or two completely crested plants would have been priceless. Unfortunately the garden was well watched, otherwise this particular collector might have forgotten his scruples!

While I'm on the subject of odd points, I must mention this: you will already know how difficult the full situation has been here. I've concrete evidence that my *Lithops* have been subjected to temperatures well below freezing point, and yet they are *all* in perfect condition. Several other collector friends of mine have noticed the same result, and I know of no one who has lost a single *Lithops* from the cold. Perhaps it's only fair to add though that the plants were all well ripened, and were quite dry at the roots. The atmosphere also at the time was quite dry.

These two experiences have served to increase my wonder at the powers of adaption of these plants we collect. It also emphasizes the fact that to the man who will constantly observe, there is a wealth of knowledge available still, concerning succulents. The last word has not yet been written and for that matter I don't suppose it ever will be.

Sumatra was a bit disappointing. I've never seen such vegetation anywhere before, but apart from an odd *Euphorbia* or two, the only succulents I saw were totally grown in pots, and they didn't look too healthy, though I doubt if the Japanese occupation could be blamed for that as well!

Just one query before I sign off. I've had a lot of experience with D.D.T. against mosquitoes, but I'm a bit hesitant of using it in my greenhouse. It seems a bit risky to experiment on plants that at the moment,. I have no prospect of replacing if things go wrong. Have you heard of anyone who has tried it? It may possibly be the answer to all our problems! Also has anyone tried the latest thing in the ant and mosquito line—Benzene Therachloride. It is made in England by the Imperial Chemical Industries under the name of Gammexane. It offers an alternative to D.D.T., as an insecticide. I know you're a very busy man, but if you could let me know about this sometime, I'd be much obliged.

C. R. HANCOCK.

FROM BRITISH SOMALILAND

On my table there are about two hundred seed pods of a *Stapelia* I have not yet been able to identify; it is growing up in the hills about two miles away in large clumps, the stems being about two feet tall. (I miss my White and Sloane.) Also grow here by the acre, as do several types of Euphorbias. Fifteen hundred miles to the south, in Kenya, *Sarcostemma* covers the ground in a similar manner, together with various Notonias, Synadeniums, and one or two Stapelias. At Turi, near the Agricultural Department's Seed Station, *Kalanchoe crenata* is worse than a weed, though this was the only succulent that I saw at that height of 8,000 feet. At 6,000 feet, *Agave* and *Aloe* abound, and one of the Cotyledons is much in evidence, together with a pretty terrestrial orchid, and two epiphytic ones. There are several very interesting parasitic plants, too, as many as three different types on one host—altogether a collector's dream of heaven! Mr. P. R. O. Bally's publications, procured through the Coryndon Museum (Kenya; Nairobi) East Africa Natural History Society, have been of great service, enabling me to identify many succulents that I found in the Nairasha—Gilgil area, and both the Kenyan and South African authorities have been very helpful. There is plenty of field work still to be done, however, and a soldier hasn't such a lot of time to spare!

JOHN W. BROWN.

VALUABLE REPRINT AVAILABLE

In order to supply the demands for additional copies of Dr. Benson's article, "The Goal and Methods of Systematic Botany," we have a few bound into 16 page self-cover booklets at 25c each.

Cactus Soils

Lecture given by J. G. DONALDSON

To the Cactus and Succulent Society of Australia

The content and preparation of soils cannot be adequately discussed without first carefully considering the question of watering.

This is a problem which probably gives more worry, especially to a beginner, than any other. We have all heard that cacti must be watered sparingly in summer and not at all in winter, that they grow in barren, arid deserts—immediately conjuring to the general public a picture of sandy wastes with little or no rainfall. This is a fallacy, as most of the species grow in rich ferruginous, volcanic, or calcareous soils with, in many cases, a heavy, if seasonal, rainfall. Generally speaking, the epiphytic types (Zygocactus, Rhipsalis, Epiphyllums) grow in the tropic or sub-tropic jungles, as also do some of the Selenicereus types. *Cactus intortus* grows near the sea coast on Puerto Rico where there is often an annual rainfall of over 100 inches.

To understand soils at all, any thought that cacti do not want water must be dispelled. What they do want is sufficient, and proper drainage to carry the surplus or free water away from the base of the plant and root system. If the soil becomes water-logged there is every probability of the loss of the plant. In advocating a copious supply of water for cacti I refer of course to healthy, well-rooted plants. If a plant has no roots it cannot absorb the moisture, and will likely rot. Unfortunately, there have been many plants sold in this condition during the last few years, and this to a considerable extent has given many the idea that they must be kept absolutely dry. Members would be well advised to make sure a plant is properly rooted before a purchase is made.

It must be remembered that the roots of a plant should never, not even in midwinter, be allowed to become absolutely dry. If the pot and soil in contact with the inner surface of the pot become dry and hot, it is almost certain that the delicate root fibres will be damaged. A pot will give a hollow ring if dry.

Let us consider the effect of watering a soil. The water will percolate through the soil and fill the small ducts or tubes which run through settled soil, driving out the air. After the free water has been lost through drainage, only such moisture as is held by molecular attraction will remain, and the air will again freely circulate through the soil. It is important that roots have air as well as water. They absorb oxygen and nitrates and exude carbon dioxide. The latter is also given off by decaying vegetable and animal matter, which is one of the main ingredients of cactus soils, although all such matter should be thoroughly decayed before use. If this gas accumulates in the soil it becomes injurious to plant life. It is readily soluble in water, and when the soil is saturated it dissolves, but as the water evaporates it is again liberated.

If we apply only sufficient water to wet the soil the gas will continue to accumulate but if water several times the volume of the soil is passed through the soil, much of the gas will be dissolved and washed out. This is what happens when a plant is left out in the rain, and we all know how it seems to benefit. It appears to be generally accepted that the washing of the leaves is the cause of the benefit, and no doubt this cleansing of the stomata also has good effect.

MIXING OF SOILS

Now to consider the essential points to be remembered in mixing soils.

1. The soil must be sufficiently open to allow the free passage of water and circulation of air.

2. It must contain sufficient nourishment for the proper growth of the plant.

3. It should contain those elements required by the particular plant in its natural growth.

Taking the first point. I have already spoken on watering generally, and now propose to explain the variation in water content of different mixtures. Leaf mould, manure, and peat hold a high percentage of water, and increase the water-holding capacity of any mixture; while sand, crock-grit, broken brick, and gravel increase the air content and consequently decrease the water content. These latter substances also increase the rate of drying. To increase the water-holding capacity of a soil, leaf mould or manure should be added; or to decrease the capacity, sand or loam should be added.

In mixing a soil it is sufficient if the mixture will pass through a one-eighth inch sieve. -- a soil is too fine the surface will, as soon as it becomes dry, break up into fine particles of dust, and when watered the water will float on the dust particles and take a long time to percolate through. Also when a soil is fine it is apt to pack and become too hard.

If soil is watered so that only the top inch or so is wet, the sun will evaporate the moisture in the capillary tubes and set up a syphon action, drawing the moisture from the subsoil and leaving the earth drier than before. If the top soil is turned over it will considerably increase the time the subsoil will hold moisture, and this also improves the aeration of the soil.

It has often been said that top watering draws the roots to the surface. I don't believe it. It may tend to make the plant send out new roots near the surface, which wither as soon as the top soil becomes dry. But other than the general drying effect previously referred to, temporary top watering will not affect the roots in the subsoil. A root grows from just behind the tip, and once grown is immovable.

Crushed brick and large pieces of charcoal are often used in soils, but unless broken up into pieces not bigger than one-eighth of an inch in diameter, it is apt to give trouble when repotting. The roots penetrate the brick or charcoal, and often break off when the plant is removed from the pot, thus destroying the growing tips of the roots. Peat is also used, more particularly abroad, and will hold water three-quarters of its volume. It is of a cellular structure, and holds water like a sponge. Leaf mould also holds a high percentage of water. Sand will not hold more than half its own volume of water; and gravel or limestone chips a very small percentage.

It is important to supply the plant with ample nourishment for its needs. Many people are apt to lose sight of this in endeavoring to make the soil open. I have seen many plants, purchased for an ornament by people having no knowledge of cacti, just planted in a soil in which coarse sand predomi-

nated. These plants just survived, and grew very little, if at all. It is really amazing how long a cactus will remain alive with practically no nourishment.

The main nutrients are leaf mould, animal manure, and red mountain loam. The latter is rich in humus, and is very popular. One should be careful to obtain the lumpy type, not the fine clayey type. Good soil may be obtained anywhere in the vicinity of the Sherbrooke forest. Cow manure is also an excellent nutrient, and in addition holds moisture well. Sheep manure is good, but is often full of grass seeds. Animal manures also contain small quantities of other minerals beneficial to plant life. In the course of fermentation it will lose the greater part of volatile nitrogen compounds and become almost the same as leaf mould. It *must* be remembered that both leaf mould and animal manure must be thoroughly and completely decomposed before use.

Plants in pots grow in very different conditions to those growing in their natural state. Roots of cacti have been known to travel up to 40 feet, and draw nourishment and moisture from a large area. The roots also extend considerable distances down crevices and under rock outcrops. Crevices are usually full of humus, and are richer than the general country. Water will remain in soil covered by large rocks much longer than in the open country, and consequently plants often thrive in apparently barren rocky country. When plants are taken out of these conditions and the roots confined to the small area of a pot, a much more concentrated feeding and more liberal watering must be adopted. Grafted plants are usually gross feeders, and the nutriment must be periodically replenished. Plants in glass houses generally require a more open soil than those in the open.

It is not usually convenient to mix different soils for various types, and one soil to suit all plants must be mixed. A suggested mixture is one part red mountain loam, one part leaf mould or well-rotted manure, and one part of sandy loam, to which can be added a little lime or crushed limestone if required. Soil for the larger growing plants, in particular the tall cereus, may be of a much heavier type. The Zygocactus, Rhipsalis, and Epiphyllums require a far higher percentage of manure or leaf mould. Some of my best specimens are growing in mixtures containing as much as 95 per cent leaf mould or well-rotted manure.

It is quite easy to dig a pit 2 or 3 feet deep and 2 feet square, fill it with fallen leaves, and cover it with loam. Provided it is kept wet decomposition should be complete in two years. A little animal manure added hastens the process, and a little sand helps to keep the texture open. A little lime gypsum or mortar added is often beneficial. If oak leaves are used the lime content should be increased 25 per cent. There are various artificial manures available. Some are quite good, but I prefer a natural nutrient.

There are a number of other ingredients used in cactus soils. Charcoal, such as is obtained from the Poultry store, is used for sweetening the soil, and helps to keep the texture open. Lime is also used to sweeten a soil, and is essential to certain species if proper growth and spine formation are to be obtained. Agricultural lime can be used, about one tablespoonful to a 5-inch pot, but if broken limestone in its natural state can be obtained it is far superior. Agricultural lime will dissolve and wash out of the soil, but natural limestone dissolves slowly and keeps a continuous supply available for the plants' needs. In choosing sand, on no account should sea sand be used. It contains too many soluble salts. If, however, you wish to use it, it should be washed in fresh water until these salts are no longer present.

The consistency of soil for seed pans or tins can only be obtained by experiment. Mix a soil that appears to be fairly loose and place it in the pan or container, immerse in water and allow to dry. It can then be seen whether the soil has packed too hard. This is to be avoided, particularly in seed raising. A soil which has an open appearance in a large container or in the garden will often be found to pack hard and be unsuitable in a small container.

Sterilization of soil is advocated by some, but I do not consider it necessary except for seed raising.

FROM WILHELM TRIEBNER'S S. W. AFRICAN NURSERY

We acknowledge with thanks receipt of your inquiry regarding plants and seeds of South African succulents. We very much regret, however, that we are at present unable to supply same. During the war we have been forced to concentrate on another aspect of our business, and the rebuilding of our succulent collection will take at least another three to five years, provided that the restrictions, at present in force, will be removed.

Lack of vehicle tires and petrol, render it impossible for us to collect the succulents growing in some of the most unaccessible parts of the country. Also, as a result of this year's unusually heavy drought prevailing in South and South West Africa, large stretches of hitherto virgin land have been opened to settlement, and the succulents there growing have been completely destroyed by grazing animals. We estimate that about a thousand of the rarest species have been exterminated in this manner. Some species might grow anew through germination of the seeds, but the introduction of these species into the trade is out of the question for the next fifteen to twenty years. To this class belong nearly all known *Lithops, Conophytes, Ophthalmophylla, Dinteranthus,* and related species, as well as the edible *Stapeliads*: *Trichocaulon, Hoodia, Caralluma,* and *Hoodiopsis.*

This state of affairs is the more to be regretted as, with the exception of the U.S.A., the cactus and succulent collections all over the world have been either wholly destroyed, seriously damaged or greatly reduced through inappropriate care. From all parts of the world we are receiving requests for co-operation in rebuilding the destroyed collections.

Seeds of succulents are for the time being unprocurable in trade as the abovementioned reasons rule out the possibility of collecting genuine seeds at their natural habitat, and seeds harvested from cultivated plants, produce worthless hybrids.

As soon as we shall again be in a position to supply seeds or plants of succulents you will be advised accordingly through advertisements in the publications of the "Royal Horticultural Society," the "Yorkshire Cactus Society," and "Cactus and Succulent Journal of America."

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Fig. 84 Photo of a 60 ft. *Pereskia Conzattii* by T. MacDougall

T. MacDougall sends this interesting photograph to compare with the "largest cactus" described by W. Taylor Marshall in the April, 1939, Journal. *Pereskia Conzattii,* shown here, is estimated to be 60 ft. in height (the base of the tree was on the camera level so the native standing at its base does not serve as a good scale, because the top of the tree is much farther from the

camera). This specimen is neither the largest nor the tallest *P. Conzattii* that Mr. MacDougall has seen but it is the tallest species he has ever seen in his many trips through Mexico. Can anyone report a taller cactus? The habitat of *P. Conzattii* is of interest in that it is confined within the minor biologic zone comprised of the Pacific plains of the Isthmus of Tehuantepec.

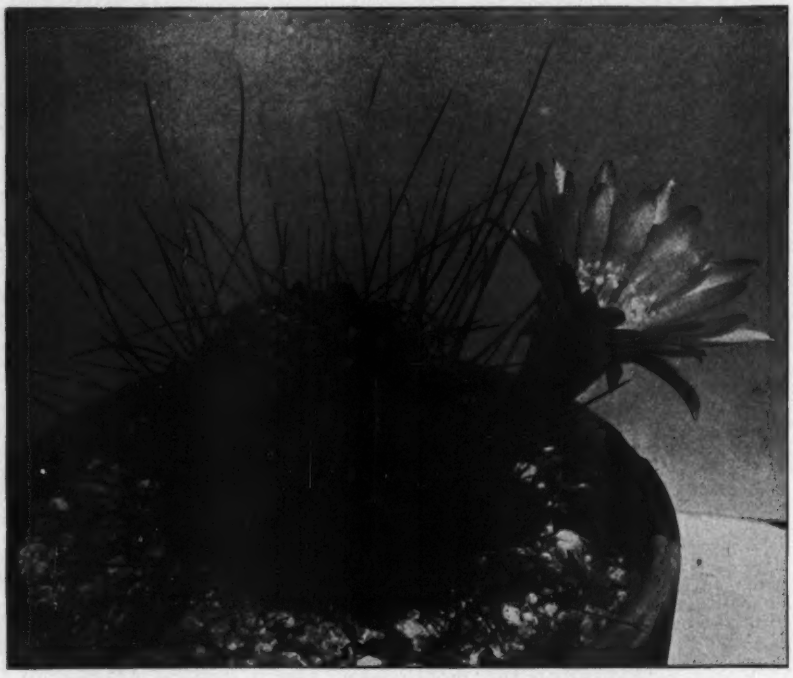

Fig. 85

Lobivia raphidacantha Backbg. 1935

Most books say that the flower and fruit of this plant are unknown. The photo was taken the middle of May. Buds began to swell in late afternoon and by 6 p.m. they were about a quarter open and remained so until 8 a.m. of the following morning. Then they opened flat and remained so for about three hours; then they closed a little for the rest of the day. They were pollinated but refused to set fruit. Flowers from the base of the plant, funnel-form somewhat spreading to 5½ cm., limb about 5½ cm. long; outer perianth segments linear acute, brownish green, somewhat recurved; inner perianth segments linear, pink, about 2 cm. long and 5 mm. broad; filaments white, half attached at mouth of the tube with the rest attached below; 8 yellow stigma lobes. Ovary and tube has lanceolate scales with light gray hairs in the axils.

GEORGE GLADE

Herr H. Krainz writes: "The Swiss Cactus Society was founded in 1930. It began publishing a periodical in 1942. It now has a membership of well over 500, divided into 14 groups. Two of these groups were in existence 25 and 30 years ago, and were formerly affiliated with the German Cactus Society. In our 'Bulletin' *Mammillaria Woodsii* was described as a new species from a plant of that name found in a large collection in Zürich in 1938. I described this species in 1944 and sent the manuscript to Herr Dölz, president of the German Cactus Society, for publication in that Journal, 'Kakteenkunde.' In the meantime Dölz and his wife were killed on the way to an air-raid shelter, and of course the manuscript was destroyed. As soon as I found that there was no chance of publication, I had it printed here in Zürich. I had no way of knowing that it had already been described by Dr. Craig, since no American literature was available over here. Thereby the species received a double description on which Dr. Craig has the priority. This fact must be made known to the various Societies. The one species cannot have two authors! This double description does not cause much inconvenience, since no new synonym is encountered. I simply withdraw as the author, which fact is readily understandable. Perhaps it will interest you to learn that Herr. V. Fric in Prague, died in 1944 of an infection. His collection has disintegrated for the most part, although there are quite a few rare, scientific-worthy specimens still present. It is possible that the remainder of this collection may still find its way to Zürich."

NOTES ON THE CONVENTION

By YOUR PRESIDENT

This being my first long plane ride, I was, of course, thrilled by the take-off from the Burbank, California, airport. Making altitude was like taking a street-car ride, and it seemed as if we were just a few feet above the tree tops and houses. Of course it was much more, for we were soon above the smog and headed south and east. The clouds below us looked like cotton candy. My first glimpse of the earth was Corona (Mr. Gates' town); I recognized it by the circle drive. Not far from here I saw the huge reservoir lake that is the outlet of the Los Angeles water supply from the Colorado river. We followed the Phoenix road through the San Gorgonio pass. Palm Springs was visible, and looked like a small square of green in an otherwise brown wasteland. We headed straight for the Colorado River and reached it in forty-five minutes after leaving Palm Springs. I have made this hot trip many times by road and it usually took four or five hours.

The dull blue Salton Sea looked like a large body of water in the distance. The color pattern of the desert was breath-taking as I viewed it for the first time from the air. The sky was many shades of blue and quite clear. The ground pattern was mostly shades of brown with an occasional patch of red or black. The mountains appeared sharp and contrasty like the craters on the moon. Dry washes looked like little rivers that could be traced to where they usually ended in a fan on the desert floor. The Los Angeles aqueduct was visible at times, a small light green line. As we left California the Colorado was a silvery line like a snake with a border of green vegetation on either side. Our first stop was Phoenix, Arizona, and we all got out and took a good stretch. The temperature was 110°. This was a shock, but we adjusted ourselves quickly.

The plane continued east from Phoenix. I couldn't pick out our home, The Desert Botanical Garden, but I know we passed quite near it. At this point I noticed cacti for the first time; the great Saguaros of course. The smaller plants melted into the landscape. The Saguaros looked like green toothpicks—each one with a dark shadow. I particularly noticed that they grew only on the south and east sides of the hills and mountains. This is more evident from the air than from the land, and they dominate the landscape for many miles.

We passed Roosevelt Dam and the reservoir, which is the water supply for the Phoenix valley, and cleared the wooded mountains by five thousand feet. This is really a great pine forest that looks like a beautiful dark green wavy carpet. Many of these trees are one hundred feet high, but look like tiny shrubs to plane passengers. Later the stewardess told us that this is one of the most dangerous spots that T. W. A. flies over on the continent, as there is no place to land between Phoenix and Winslow, a distance of about two hundred miles.

Near Winslow, Arizona, we saw the first of the Painted Desert. I had seen it (I thought) from the ground several times, but from the air it is magnificent. I counted about twelve distinct colors, but there were many more. It is a wasteland hundreds of miles in area that seems, from the air, to contain not a living thing. There were no roads, houses or trees visible; but I saw a sunset on this apparently "lost world" that I could find no words to describe.

I'll not bore my readers with details of the rest of my trip to Cincinnati. It was uneventful except for the storm we ran into near Amarillo, Texas. We were bounced around a little, but most of the passengers slept through it. There was a dense fog hanging over the state of Missouri, and we flew above it all the way. How the pilot found Cincinnati, I shall never know. I found it hot and humid, and Cincinnati found me hot, and in a bad humor. My baggage didn't come through, but arrived later. My "feahers" were soon smoothed by the gracious hospitality of Charley and Mrs. Cole.

Our first job was the registration of the delegates. While Mr. Marshall and Mr. Gates took care of this, several of us mounted the photographic exhibits on screens. Noon found us at a luncheon at Eden Park. The food was excellent; thanks to our hosts, the K.I.O. Club. From here we went to the auditorium of the main park building and had our first meeting. Mr. Krohn, the park commissioner, made the welcoming adress. This was acknowledged by your president with an introduction of all the national officers of the society, giving a short biography of each one. Those who were present were asked to take a bow. Mr. Marshall, the convention chairman, took over the meeting at this point and we went into a business session.

Friday we visited The Lloyd Library, and it turned out to be one of our most enjoyable trips. Mrs. Simon, the little lady who conducted us through the library, made it even more enjoyable by her clear descriptions of the books and the history of this most interesting place. From here we went to see the cactus show, and, of course, to see the great conservatory itself; it was the finest any of us had seen. It showed the many years of effort of its creator, Mr. Krohn, and of his staff, to whom he gave much credit.

Our cactus show was a success and a lovely display; thanks to Mr. Gates and the local members of the K.I.O. Club for the help they so generously gave him.

Friday evening Mrs. D. B. Philips, who helped us get publicity on the radio, and who also helped us in many other ways; and Mrs. Cole, who was always around when there was work to be done, rounded up a dozen of us and we went for a ride on a stern-wheeler up the Ohio river to Coney Island. The delegates who missed this trip, missed about one and one-half hours of delightful relaxation on a boat where we arranged our chairs in a circle and really became acquainted. By the time we arrived at Coney Island, we were calling each other by our first names. We ate supper there and had a lot of fun.

Back at the hotel Earnest Beahm, Mrs. Cariss, and I found a round-table discussion going on in the middle of the lobby. It broke up about midnight, and the problems discussed were brought up at our last session on Saturday. There was some discussion as the meeting opened. Some of the delegates seemed to feel that the entire society was run by and for Californians. However, when they understood that it was possible for them to vote by secret ballot for any person they wanted for future conventions, they became more friendly and all the dissension seemed to be ironed out.

Mr. Gates was unanimously elected chairman of the 1949 convention, which will be held at Phoenix, Arizona. There was also no competition for Phoenix

as the next convention city. This was largely due to the marvelous collection of colored slides which Mr. Marshall showed us.

Dr. Elzada Clover, our honorary vice-president gave us a play by play description of her vacation and plant hunt in Nicaragua, which was a highlight of the convention.

B. Y. Morrison of Washington, D.C., who is President of the American Horticultural Society, gave us an educational address. Mr. Scott Haselton, our editor, told us about the Journal. Mr. Rogers and Mr. Cutak gave us talks on their favorite subjects.

At our banquet Howard Gates gave us his story, "A Trip to Baja California." After which Mr. Marshall turned the convention back to your president who made a few wisecracks and asked that the convention be adjourned.

I feel that the convention, though small, was a success in that many small groups were welded together as friends. Let us hope that this friendship shall continue and find its climax in the "Days of '49" to be celebrated in Phoenix, Arizona, in July, 1949.

CARL BRASSFIELD.

Aug 4. Buds on *Hylocereus undatus* 5½ in. long. Shaded by 13½ ft. *Kalanchoe tubiflora* x *diagremontianum* (Houghton hybrid). 110° with all ventilators open, 90° outside. Maples to the west shade the succulents after 3 p.m. Hot! *Lithops turbiniformis*, from seeds collected in South Africa, have two heads each; have not bloomed so far.

Aug. 7. Took one of my regular field trips to Cleveland's 5 and 10 cent stores, Woolworths, Grants, etc. Found four or five species of *Malacocarpus* and hairy types of Mams. such as *M. bocasana*. The columnar types were mostly *Harrisia, Pachycereus,* and *Selenicereus*. The stores have regular counters for succulents and the clerks say their regular customers get there early for first choice.

Aug. 9. *Euphorbia barnhardtii* has 12 four-inch branches which makes it a miniature tree. Leaves resemble *E. neriifolio*. Grows about one inch a year for me. *E. abyssinica* is over a foot high and is one of the prettier ones, regular and straight; has 3-inch lance-shaped leaves; plant grows 2 to 3 inches a year here. *Crassula falcata* flowered. New growth on *Epiphyllanthus obovatus;* new growth is spiny like young *Opuntia erinacea* pads. The whole plant is made up of inch long round sections. Buds in January or February but mine aborted. Grafted on *Selenicereus macdonaldieae;* slant graft. Likes more water during rest period than its cousins the *Zygocactus* and *Schlumbergera*. Rich soil for two pieces on own roots (not cuttings but joints that fell when plant was too dry).

Aug. 10. Two *Hylocereus undatus* (*triangularis*) are magnificent reminders of the acclimatized plant in Honolulu. Crowd was in until I turned off the light at 1 a.m. "Do they bloom? How often," etc., etc., are questions asked. Plant has climbed 12 ft. to braces of the glasshouse and is now clambering over these. Has liberal top dressing of chicken manure and sand. Plenty of water the year around.

Aug. 11. Gave top dressing of sand and pulverized manure to late blooming Epiphyllums. Usually bud in early September. Books say do not feed plants when in bud. I may be wrong but I feed my plants whenever palnts are growing or when growth starts. I do not repot my plants as often as local collectors do, consequently I feed them more.

Aug. 12. Cool today. Gave manure water to *Oreocereus* and *Cephalocereus*. Began my semi-annual cleanup of my plants, benches, and greenhouse. Insect population changes from time to time. Pill bugs (sow bugs) eat decaying material, scale insects, spine bugs eggs, and young. Night inspection made this information available. Mealy bugs have never been numerous because of a small fly, white faced wasp type, that keeps this pest down. I've seen the fly crawling over the woolly masses. Scale is controlled as it is found mostly on smooth starved types such as Christmas Cacti and Epiphyllums. Ants work in some pots of dry soil, not because of root mealies, but because the soil is the only thing that seems dry and excavatable in early spring when they begin to work.

Aug. 15. *Bergeranthus scapiger* bloomed; smaller replicas of the usual dandelion yellow of allied species. Bloom stalk grows singly and then divides into a head of two blooms. Buds developing on *Epiphyllum anguliger;* likes moisture laden air about it. Keep pot in larger one which I keep wet. Hangs in shade of grape arbor. Fruit is reported as delicious but so far no fruit has ever developed for me although it is a regular bloomer because I keep it pot-bound.

Aug. 17. Rainy. Papers claim 38 days drought is broken. Have watered plants every evening with tepid water for the last two weeks. Do not slow up on the watering here as we have warm weather suitable for plants out-of-door up to October 15. Gave the hungry plants a shot of manure water. Constant watering leaches out the food. They will use up this extra nourishment before I "rest them." *Harrisia eriophora* dead. One I had to watch all the time because spine bugs and other critters seemed to use it as their "Grand Hotel." Even though this plant was a sickly one I could not throw it out!

Aug. 22. Used the "force spray" from the hose to clean off the spine bugs on several of the host plants. Checked Christmas Cactus; new growth is hardening rapidly and will be ready for September and October rest period to insure winter bloom. This is the period for slowing up watering but plants harden during our open fall (October 16-23 which is the date for first frost) so hate to stop while growth continues.

Aug. 27. Cephalocerei which have a tendency to get a brown crust over the top, have responded to manure water and lime rubbish mulch. *Epiphyllum hookeri* opened. It's one of the largest of the white, wheel-shaped blooms. Branches are a medium green with waxy covering. Buds near ends of branches as well as along the center of the branch.

Aug. 29. Have decided to try more water on my *Echinopsis* this winter. The best results have been when I keep my plants moist. Buds form early and blooms develop before too hot weather. I believe poor circulation of air, hot weather, and keeping the plants too dry are my major reasons for poor flowering of cacti and other succulents.

Aug. 31. Coldest August in history of the Cleveland weather bureau. Temperature changes keep me busy opening and closing the glasshouse. 74° at noon and 46° in p.m.

SPINE CHATS

LADISLAUS CUTAK

When Tom MacDougall and I sojourned in the Isthmus of Tehuantepec earlier in the year, we made our headquarters at Hotel "La Perla" for a number of weeks. Of course we were seldom "at home" in the hotel for most of the time we were out scouting the countryside for cacti, pictures and adventure. While in Tehuantepec, Tom introduced me to a gentleman who is well known in the Isthmus. Anybody that has anything to do with the Isthmian region will, sooner or later, run into Wilbur Barker. In recent years Mr. Barker has become interested in cacti and he is a member of our national cactus society.

Wilbur Barker is a big strong man, well over the six foot mark, who has stuck around Mexico for the past 40 years and yet retained his American citizenship. As a young lad of twenty he was sent to San Gabriel, in Vera Cruz, to manage a coffee plantation operated by a group of Chicago business men. The plantation was located about a day's horseback ride from the village of Playa Vicente and it employed about 150 peons. The former manager stayed on for about a month after Barker's arrival, so young Wilbur had a grand time learning everything that was to be learned about managing a coffee finca right from the start. He stuck to the job for about four years, learning the ways of Mexico, planting tobacco, sugar cane and indulging in tropical agriculture. About 1908 several Scotchmen from Glasgow bought a rubber plantation near Cordoba and tempted Barker with an offer to supervise their rubber farm. The plantation was originally planted with *Castilla elastica*, chief source of Mexican rubber, but the new owners had contracted for some 200,000 plants and seed of *Hevea brasiliensis* from Ceylon, and this was grown with far better success than the native rubber tree. While engaged in rubber work, another new world opened up for him. The jungle country around Cordoba is known for its orchids and the sight of so many flowering at one time excited him beyond words. Eagerly he reached out for a flowering specimen and took it with him to the ranch-house, where he fastened it on a piece of cedar bark. The plant became established and so he tried it with several others with success. Orchids became his off-duty pleasure and at one time he had 1700 in his collection. Then a revolution breaks out and the rebels visit his place but do not molest him or the property because he sought to it that they were well treated. However, a second party swoops down on the plantation and there is a fight in which several rebels are killed. Not wishing to antagonize the warring factions he grabs a few belongings and leaves the place for Vera Cruz, arriving in that town just about the time when the American army landed to protect our interests. All his beloved orchids were lost, the plantation laid waste and even now it is still in ruin, overgrown with weeds.

Prior to the revolution, while stationed near Cordoba, Barker had made several trips to the Isthmus and on one of his periodic visits he met up with a lovely Tehuana girl and fell head over heels in love with her. Shortly after he married her. A daughter was born to them in 1913 and they rented a nice little cottage out by the seashore where they lived happily until the American army left Vera Cruz. Then they boarded a train and came to Tehuantepec and have lived there ever since. During the World War II Mr. Barker served in the secret service at the border while his two boys entered the army in San Antonio. When hostilities terminated Papa Barker beat it back to Tehuantepec as fast as he could. Knowing that orchids would not thrive so well in the desert atmosphere of this Isthmian metropolis, he turned to cacti and derives much pleasure from them. Somehow he is partial towards Mammillarias. Later on I'm going to tell you more about his hobby and hope to have pictures to go with it.

Wilbur Barker is truly a character with a sense of humor that's hard to beat. When I was in Tehuantepec I used to hie myself to his home and chat over many a cup of tea. Talk about adventure and experiences, that man had his share of both in Mexico. He has collected orchids, cacti, snakes and everything imaginable for private collectors and institutions and if anyone needs anything from the Isthmus of Tehuantepec it is very likely that Wilbur Barker can get it for you.

* * *

J. S. Daston of the Chicago Natural History Museum is the author of a new genus and three species in the Cactaceae. In the November, 1946, issue of the American Midland Naturalist (36:661-662) he proposes a new genus, *Micropuntia*, for plants locally known as *Opuntia fragilis* in southwestern Utah in the vicinity of the Desert Experimental Range west of Milford, where they were collected. The plants, according to Daston, possess the characteristic roots of *Pterocactus* but the areoles are without glochids and the small size and clavate shape of the branches, however, exclude them from this genus. *Micropuntia brachyrhopalica* is the type species of the new genus. The other two species are *M. Barkleyana* and *M. spectatissima.* * * *

The Atkins Institution of the Arnold Arboretum of Harvard University in Cuba now has a new name. It is to be known as the ATKINS GARDEN and RESEARCH LABORATORY. Dr. Arthur Kevorkian is now in charge of the place and Mr. Frank Walsingham is still the superintendent. The cactus collection is doing nicely—it has been reduced by cutting out all the Opuntias, as these plants turned out to be a nuisance in cleaning and many were getting out of bounds and liable to become a pest. Some of the small cacti are kept in a greenhouse where they can be looked after better and also where they do not suffer from the summer rains. * * *

Dr. Leon Croizat, formerly of the Arnold Arboretum, is in charge of the "succulent" section of a botanic garden in Caracas, which is now in active process of development. He is in the employ of the Venezuelan Government as "botonico" and would welcome seeds of cacti and succulents, particularly all Mesembryanthemums in the Trichodiadema group.

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